

Geometry Unit 6 Worksheet #4 – Proportions review

For #1 - 3, simplify the ratio. Be sure to convert units if necessary!

$$1) \frac{13\cancel{\text{ft}}}{8\cancel{\text{in}}} \cdot \frac{12\cancel{\text{in}}}{1\cancel{\text{ft}}} = \frac{156}{8} = \frac{39}{2}$$

$$2) 4\cancel{\text{gallons}} : 36\cancel{\text{quarts}} = \frac{4\cancel{\text{qt}}}{36\cancel{\text{qt}}} \cdot \frac{4\cancel{\text{qt}}}{1\cancel{\text{qt}}} = \frac{16}{36} = \frac{4}{9}$$

$$3) \frac{8\cancel{\text{oz}}}{6\cancel{\text{lbs}}} \cdot \frac{16\cancel{\text{oz}}}{1\cancel{\text{lb}}} = \frac{8}{96} = \frac{1}{12}$$

For #4-6, write the ratio in lowest terms. Make sure you are using the same units!!!

- 4) A rectangular swimming pool is 28 feet long by 12 feet wide. What is the ratio of the length to the width of the pool, in simplest form?

$$\frac{28}{12} = \frac{7}{3}$$

- 5) Out of 1000 households, 520 had at least one dog or cat. What is the ratio of pet owners to households? What is the ratio of pet owners to non-pet owners?

$$\hookrightarrow \frac{520}{1000} = \frac{13}{25}$$

$$\hookrightarrow \frac{520}{480} = \frac{13}{12}$$

- 6) On the floor plans for a house, the length of a room is 4 inches. The actual room length is 7.5 yards. What is the ratio of the plans to the actual room?

$$\frac{4\cancel{\text{ins}}}{7.5\cancel{\text{yds}}} \cdot \frac{36\cancel{\text{ins}}}{1\cancel{\text{yd}}} = \frac{4}{270} = \frac{2}{135}$$

For #7-12, solve each proportion for the variable. Round to the nearest hundredth.

$$7) \frac{8}{x} = \frac{4}{5}$$

$$\begin{aligned} 8 \cdot 5 &= 4x \\ 40 &= 4x \\ 10 &= x \end{aligned}$$

$$8) \frac{x}{10} = \frac{5}{7}$$

$$\begin{aligned} 7x &= 5 \cdot 10 \\ 7x &= 50 \\ x &= 7.14 \end{aligned}$$

$$9) \frac{8}{2} = \frac{(x-8)}{3}$$

$$\begin{aligned} 2(x-8) &= 3 \cdot 8 \\ 2x - 16 &= 24 \\ 2x &= 40 \\ x &= 20 \end{aligned}$$

$$10) \frac{5}{(n-4)} = \frac{3}{9}$$

$$\begin{aligned} 3(n-4) &= 5 \cdot 9 \\ 3n - 12 &= 45 \\ 3n &= 57 \\ n &= 19 \end{aligned}$$

$$11) \frac{p}{(p-2)} = \frac{4}{2}$$

$$\begin{aligned} 2p &= 4(p-2) \\ 2p &= 4p - 8 \\ 0 &= 2p - 8 \\ 8 &= 2p \\ 4 &= p \end{aligned}$$

$$12) \frac{5}{8} = \frac{(c-9)}{c}$$

$$\begin{aligned} 8(c-9) &= 5c \\ 8c - 72 &= 5c \\ 3c - 72 &= 0 \\ 3c &= 72 \\ c &= 24 \end{aligned}$$

For #13-15, use proportions to solve each equation. Round to the nearest hundredth.

- 13) If 4.5 gallons cost \$13.25, how much will 2 gallons cost?

$$\frac{4.5}{13.25} = \frac{2}{x} \quad 4.5x = 2(13.25)$$

$$4.5x = 26.5$$

$$x = \$5.89$$

- 14) There are 237 senior girls at a high school. The ratio of girls to boys in the senior class is 3:4. How many seniors are boys?

$$\frac{\text{Girls}}{\text{Boys}} = \frac{3}{4} = \frac{237}{x} \quad 3x = 4 \cdot 237$$

$$3x = 948$$

$$x = 316 \text{ boys}$$

- 15) Mike is having a 3 inch (length) by 5 inch (width) photograph enlarged so that the width is 18.5 inches. What is the length of the enlargement?

$$\frac{3}{5} = \frac{x}{18.5} \quad 5x = 3 \cdot 18.5$$

$$5x = 55.5$$

$$x = 11.1 \text{ in.}$$

For #16 – 17, Find the measures of the angles.

- 16) The ratio of the angles of a triangle are 5:7:8. Find each angle.

$$5x + 7x + 8x = 180^\circ$$

$$20x = 180^\circ$$

$$x = 9^\circ$$

$$\angle 1 = 5x = 5 \cdot 9 = 45^\circ$$

$$\angle 2 = 7x = 7 \cdot 9 = 63^\circ$$

$$\angle 3 = 8x = 8 \cdot 9 = 72^\circ$$

- 17) The ratio of the angles of a triangle are 3:5:2. Find each angle.

$$3x + 5x + 2x = 180^\circ$$

$$10x = 180^\circ$$

$$x = 18^\circ$$

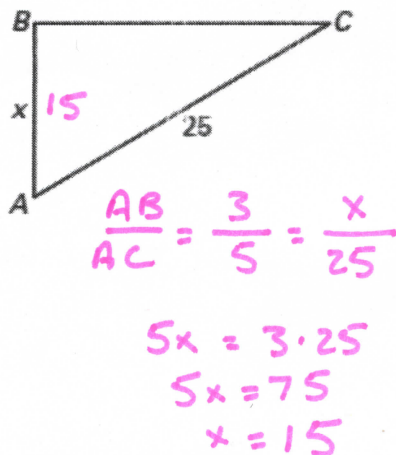
$$\angle 1 = 3x = 3 \cdot 18 = 54^\circ$$

$$\angle 2 = 5x = 5 \cdot 18 = 90^\circ$$

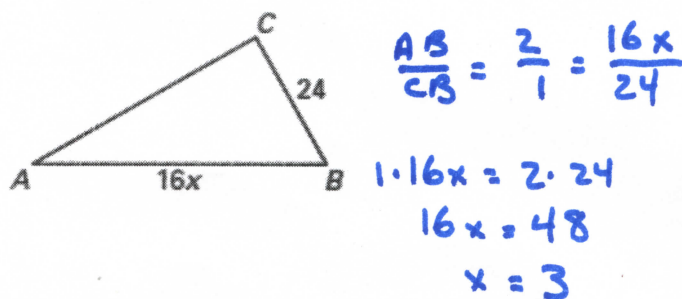
$$\angle 3 = 2x = 2 \cdot 18 = 36^\circ$$

For #18 and 19, use the ratio of the sides to solve for the variable.

- 18) $AB:AC$ is 3:5.



- 19) $AB:CB$ is 2:1.



- 20) What does it mean if two triangles are congruent? Give one example of a way two triangles would not be congruent?

~~ARE~~ SAME SIZE AND SHAPE
BOTH HAVE.

A RIGHT Δ AND AN OBTUSE Δ